

REMARKS

Applicants acknowledge receipt of the final Office Action dated October 13, 2009. In this response Applicants have amended claims 21 and 23. Specifically, part of claim 23 has been included within claim 21. Following entry of these amendments, claims 21-40 are pending in the application. Claim 21 is the only independent claim. Applicants respectfully submit that no new issue is raised by this amendment.

Reconsideration of the present application is respectfully requested in view of the foregoing amendments and the following remarks.

Information Disclosure Statement

The Office Action states that the IDS filed 09/27/06 fails to comply with the requirements, namely that a listing of the references submitted was not included. However, Applicants submit that an entire copy of that 09/27/06 IDS, include a copy of the corresponding FORM PTO/SB/08, was attached to the Office Action dated 03/20/09. A copy of the IDS pages are enclosed; this copy shows a stamp of USPTO-origin on each page, including the FORM PTO/SB/08 (with the Examiner's notation). Applicants ask for this issue to be reconsidered.

Prior Amendment to Title

The Office Action states that the title of the invention is descriptive and needs to be changed. Applicants respectfully submit that the title was already amended in the last Amendment to read more descriptively: "FUEL REFORMER SUPPRESSING UNEVEN TEMPERATURE DISTRIBUTION IN REFORMING ELEMENT." However, Applicants are willing to consider further suggestions.

Rejections Under 35 U.S.C. § 103(a)

There were two different "obviousness" rejections: (a) claims 21-37 and 40 under 35 U.S.C. §103(a) as being unpatentable over U.S. 2003/0072699 to Tonkovich; and (b) claims 38 and 39 as being unpatentable over Tonkovich and Powell, and further in view of

U.S. 2005/0172566 to Powell. Applicants respectfully submit that the amendment to claim 21 now overcomes these prior art references, particularly the primary reference of Tonkovich.

First, Tonkovich does not show the claimed features in claim 21 of: (1) “a reformat gas manifold communicating with said at least one reforming catalyst passage and collecting the generated reformat gas”, (2) “plural supply passages communicating with the reformat gas manifold”, (3) “said at least one reforming catalyst passage being disposed between the supply passages”, (4) “each supply hole communicating with said at least one combustion gas passage and one of the plural supply passages”, and (5) “at least part of the generated reformat gas is supplied to said at least one combustion gas passage via each supply hole from one of the plural supply passages of the reforming element”.

Second, with regard to the invention of Tonkovich, a person skilled in the art may use reformat gas from the reforming element 52 as the hydrogen source of the combustion passage 54. However, it would have been difficult to conceive, at the time of the claimed invention’s creation, of a compact structure that allows only the reformat gas to flow from the reforming element 52 to the combustion passage 54. For example, if holes are simply provided to the chamber wall 59 of FIG. 5 of Tonkovich, then reactant (unreformed gas or fuel) would flow from the reforming element 52 to the combustion passage 54.

In contrast, the fuel reformer recited in amended claim 21 provides a compact structure that allows only the reformat gas to flow to the combustion passage and prevents reactant (fuel) from flowing to the combustion passage. The compact structure is constituted by the combination of structure of the reforming catalyst passage, the reformat gas manifold, and the supply passage in the reforming element, combined with the plurality of supply holes communicating with said at least one combustion gas passage and one of the plural supply passages.

Third, the fuel reformer in claim 21 recites a compact fuel reformer with a combustion element that is thinner than the combustion element shown in FIGS. 5 and 6 of Tonkovich. Applicants respectfully note that the combustion element shown in FIGS. 5 and 6 of Tonkovich has a combustion passage and an extra H₂ mixture passage.

In conclusion, Applicants respectfully submit that a person skilled in the art at the time of the invention could not have derived the invention of the amended Claim 21 from Tonkovich.

CONCLUSION

In view of the foregoing amendments and remarks, Applicants respectfully submit that all of the pending claims are now in condition for allowance. If there are any questions or suggestions regarding the application, the Examiner is invited to contact the undersigned at the number below.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing or a credit card payment form being unsigned, providing incorrect information resulting in a rejected credit card transaction, or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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